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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/822,179

Applicant(s)

KIHARA ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/874,665.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Remark

- The applicant has filed a preliminary amendment on *April 8, 2002* to indicate the cancellation of claims 1-24 and to newly add claims 25-39. The Office has mailed a non-responsive notice out on *April 9, 2002* to indicate that the amendment is **not** in compliance with the requirement, (37 CFR 1.121). However the applicant has not responded to the notice. The preliminary amendment therefore **has NOT been entered**.
- *Claims 1-24 remain pending in this application.*

Specification

- The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

- The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
- **Claims 1-22 and 12-22 are rejected under 35 U.S.C. 112, first paragraph**, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1-10 recite an image recording method for "sequentially recording images corresponding to image data of a parallax image string as strip- or dot-shaped hologram elements", that is not enable by simply having an optical component contacted with the surface of the recording medium.

Claims 11 and 12-22 recite an image recording method and apparatus for “fabricating a stereogram by the edge-lit system” wherein means for generating image data corresponding to parallax image string, means for sectioning the hologram recording medium to strip or dot shaped recording medium are critical or essential to the practice of the invention but not included in the claims is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The applicant is respectfully reminded that a holographic stereogram or strip or dot shaped hologram elements *will not be able* to be recorded by simply directing *a pair* of object and reference beam to the recording medium. The claims as stated now are only enabled to record an ordinary hologram with *a single viewing perspective* but not a stereogram, which allows a *plurality of viewing directions*.

Clarifications are required.

- The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- **Claims 4-5, 9-10, 11 and 12-22 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase “the edge-lit system” recited in claims 4, 8, and 11 is indefinite and vague since it lacks proper antecedent basis from their respective based claim or from earlier part of the claim. Claims 5 and 9 inherit the rejection from their respective based claim.

Claim 12 is *incomplete* since it fails to give a *structural relationship* between the elements recited in the claim. It is not clear if the “light inlet block” recited in the phrase “to fall on the opposite surface via a light inlet block” is the same or difference block with respect to the “light inlet block” recited in the earlier part of the claim. The phrase “for fabricating a holographic stereogram of an edge lit system” is

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functional and indefinite since it fails to give the critical elements that constitute the "edge lit system" to define the definite metes and bounds of the "edge lit system". Claims 13-22 inherit the rejections from their based claim.

The phrase "light inlet block" recited in claims 13-14 and 16-18 are indefinite since there are more than one light inlet block recited in their based claim 12.

The phrase "the optical element ... *interrupting* the object light" recited in claim 13 is indefinite and vague since it is not clear what does it mean by "interrupting". It is not clear if the "light inlet block" is to absorb, to block, to refract or to reflect the object light beam. It is not clear how does such "interrupting" would interfere with the recording process.

Claim 16 recites "movement of said recording medium" and claim 17 recites "being rotated with recording medium" that are *functional* since the claims or their based claim fail to recite the means or arrangement for enabling the movement and rotation of the recording medium.

Claim 21 recites "a cleaning means for removing contamination" that is indefinite since it is not clear what type of "contamination" is intended to be removed and which therefore is not clear what definite limitations of the "cleaning means" is considered here since different type of contamination requires different type of cleaning means.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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(c) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

- **Claims 1-2, 4-5, 6-7, 9-11, 12 and 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to Hotta et al (PN. 5,504,593).**

Hotta et al teaches a *hologram recording method and recording apparatus* wherein apparatus comprises a *recording film* (2, Figures 1-8) served as the *recording medium*, and a transparent member (3), serves as the *optical component or the light inlet block*, that is in contact, via an index matching liquid (4) which is continuously fed in through a fed nozzle (8), with the recording film. Hotta et al teaches that the incident light is *edge illuminating* the recording film through the transparent member via a *strip incident region* (10). The incident light enters the hologram recording film at one surface and the light is reflected by the interface between the recording film and either an air, a protective film (16) or a reflector (18) and then the reflected light beam interferes with the incident light beam to form interference fringes in the recording film and been recorded within, (please see Figures 1-8, columns 8-11). With regard to the feature concerning the *light absorbing member*, Hotta et al teaches that the transparent member is light absorbing treated so that unwanted reflections of the object and reference beams from the sides of the transparent members are eliminated, (please see column 10). Hotta et al also teaches that the transparent member has a shape that is fitted with the rotation of the recording film.

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This reference has met all the limitations of the claims with the exception that the reference does not teach explicitly that the recording method and apparatus are applied for recording image data having parallax image string or for fabricating holographic stereogram. However it has been held a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ2d 1647 (1987). Hotta et al in particular teaches an optical arrangement for directing the light to enter the recording film through a narrow strip region (10), which therefore limits the hologram-forming region on the recording film, wherein such arrangement is essential for recording holographic stereogram.

This reference has therefore anticipated the claims.

- Claims 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to Molteni et al (PN. 5,663,815).

Molteni et al teaches a head up display wherein a *stereogram* (13) is applied directly to a *viewing window* (15), serves as the *light inlet block*, wherein the stereogram is *edge illuminated* by the light source (25) to produce three dimensional image, (please see Figure 2, and column 11). This reference has therefore anticipated the claims.

Claim Rejections - 35 U.S.C § 103

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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- **Claims 3, 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hotta et al in view of the patent issued to Smith (PN. 5,016,950).**

The method and apparatus for hologram recording taught by Hotta et al as described for claims 1, 6, and 12 above has met all the limitations of the claims with the exception that this reference does not teach explicitly to use a set of *diffusion plate and louver film* or a *diffusion plate* with the object beam. However it is well known in the art that using a diffusion plate with the object beam when recording a hologram would increase the extend of the viewing angle of the hologram and the it is also well known in the art that using a louver film with the recording beam can direct the beam to the particular recording location as desired. Such are disclosed by **Smith** wherein a diffusion plate with a louver filter laminated is used to create a well-defined exit pupil for the incident light beam, (please see Figure 5 and the abstract). It would therefore have been obvious to one skilled in the art to modify the hologram recording apparatus of Hotta et al according to the teachings of Smith for the benefits of extending the viewing angle of the hologram recorded and eliminating cross talk between the recorded holograms by more accurately directing the recording beam to the desired recording location.

- **Claims 13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hotta et al.**

The hologram recording apparatus and method taught by Hotta et al as described for claim 12 above has met all the limitations of the claims. This reference however does not teach explicitly that the optical member or transparent member for "interrupting the object beam". However since the specification fail to definitely describe what is considered here as "interruption" such phrase is therefore examined in the broadest interpretation. It is known in the art that the transparent member is a refractive medium with respect to the incident light and it implicitly "interrupts" the object beam by refraction.

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With regard to the feature concerning light absorbing member, Hotta et al teaches that the transparent member is subjected to light absorbing treatment but it does not teach explicitly that the transparent member is made with internal hollow portion and to arrange a light absorbing portion within. However the specification fails to teach the criticality of having this particular arrangement would overcome any problem in the prior art and since the prior art arrangement achieves the same function as to eliminate unwanted reflection of the light, such modification is considered to be obvious matters of design choice to one skilled in the art for the benefit of eliminating unwanted reflections of the light beam within the transparent members.

With regard to the feature concerning using a thrusting means for positioning the transparent member, Hotta et al does not teach such feature explicitly. However such means for thrusting the transparent member to the operational position is implicitly included since the transparent member must be positioned by certain means.

- **Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hotta et al in view of the patent issued to Ishikawa et al (PN. 5,798,850).**

The hologram recording method and apparatus taught by Hotta et al as described for claim 12 above has met all the limitations of the claims. Hotta et al teaches that a protective film (16) may be used with the recording film but it does not teach explicitly to include a means for removing the protective film. **Ishikawa** et al teaches a method for duplicating the hologram wherein the hologram recording medium (2) has a base film (3) attached to it as a protective layer to the recording medium and the base film is peeled off by a roller before the recording medium is applied to the exposure of recording process, (please see Figures 12(a) to 12 (b)). It would therefore have been obvious to one skilled in the art to apply the teachings of Ishikawa et al to modify the recording apparatus of Hotta et al for the benefit of providing a protective layer to the recording medium and a means for removing such before recording

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process. With regard to the feature concerning the means for removing contamination since the applicant fails to definitely define such means, (please see the rejection under 35 USC 112, second paragraph); it can only be examined in terms of broadest interpretation. Ishikawa et al discloses various means to remove excess index matching liquid or to remove possible dust particles, which reads on the feature.

Conclusion

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent issued to Upatnieks (PN. 4,643,515) discloses an edge illuminated hologram recording and reading apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.
April 9, 2003